In the Application of:

ND TRADEMARK OFFICE IN THE UNITED STATES

1AN 0 6 2003

Lewis A. Chodosh et al.

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Application No.: 10/032,256

Group Art Unit: TBA

Filed: 12/21/2001

Examiner: TBA

Title: Hormonally Up-Regulated, Neu-Tumor-Associate Kinase

Assistant Commissioner for Patents

Washington, DC 20231

## INFORMATION DISCLOSURE UNDER 37 CFR 1.97(b)

The attention of the Patent and Trademark Office is hereby directed to the documents listed on the attached Form PTO-1449. One copy of each of these documents is Sir: attached, with the exception of the following:

- 1. Cooper, G. M. "Oncogenes." Boston: Jones and Bartlett Publishers (1987).
- 2. Harlow, E., and Lane, D. "Using Antibodies: A Laboratory Manual," Cold
- Spring Harbor Laboratory Press, Cold Spring Harbor, NY (1999). 3. Hogan, B., Beddington, R., Constantini, F. and Lacy, E. "Manipulating the Mouse Embryo: A Laboratory Manual." Cold Spring Harbor, NY: Cold Spring Harbor

The above-identified books are used to support background material in the Laboratory Press (1994). specification of the instant application. Applicants will provide the books if the Examiner believes that a review of the entire publication, or any part thereof, is relevant to the examination

No fee or certification is required in connection with this Information Disclosure, of the present application. since it is being submitted prior to the last of 1) issuance of a first Office Action on the merits, or 2) expiration of the three-month period following filing of the above-identified application.

It is respectfully requested that the information be considered by the Examiner and that a copy of the attached Form PTO-1449 be returned indicating that such information has been considered.

In the event any fees are required in connection with this paper, please charge Deposit Account No. 50-0979. A copy of this document is enclosed.

Applicants' undersigned attorney may be reached by telephone at (215) 575-7034. All correspondence should be directed to the below-listed address.

Respectfully submitted,

Evelyn H. McConathy

Registration No. 35,279

Date: December 30, 2002

DILWORTH PAXSON LLP 3200 Mellon Bank Center 1735 Market Street Philadelphia, PA 19103-7595 Tel. (215) 575-7000 Fax (215) 575-7200

Sheet 1 of 8 Form PTO-1449 DOCKET NO. 22253-70421 S. Department of Charles 2003 DE Filed: Dealer 1600/2900 APPLICANT: Lewis A. Chodosh, et al. FILING DATE: 12/21/2001 OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, etc.) Aasheim, H. C., Terstappen, L. W., and Logtenberg, T. "Regulated expression of the Eph-related receptor tyrosine kinase Hek11 in early human B lymphopoiesis." Blood 90: 3613-3622 (1997). Adams, R. H., Wilkinson, G. A., Weiss, C., Diella, F., Gale, N. W., Deutsch, U., Risau, W., and Klein, R. "Roles of ephrinB ligands and EphB receptors in cardiovascular development: De-marcation of arterial/venous domains, vascular morphogenesis, and sprouting angiogenesis." Genes Dev. 13: 295-306 (1999). Adnane, J., Gaudray, P., Dionne, C. A., Crumley, G., Jaye, M., Schlessinger, J., Jeanteur, P., Birnbaum, D., and Theillet, C. "BEK and FLG, two receptors to members of the FGF family, are amplified in subsets of human breast cancers." Oncogene 6: 659-663 (1991). Alderson, A., Sabelli, P., Dickinson, J., Cole, D., Richardson, M., Kreis, M., Shewry, P., and Halford, N. 04 "Complementation of snf1, a mutation affecting global regulation of carbon metabolism in yeast, by a plant protein kinase cDNA." Proc. Natl. Acad. Sci. USA 88: 8602-8605 (1991). Andres, A.-C., Zuercher, G., Djonov, V., Flueck, M., and Ziemiecki, A. "Protein tyrosine kinase expression during 05 the estrous cycle and carcinogenesis of the mammary gland." Int. J. Cancer 63: 288-296 (1995). Becker, W., Heukelbach, J., Kentrup, H., and Joost, H. G. "Molecular cloning and characterization of a novel mammalian protein kinase harboring a homology domain that defines a sub-family of serine/threonine kinases." Eur. J. Biochem. 235: 736-743 (1996). Bergemann, A. D., Zhang, L., Chiang, M. K., Brambilla, R., Klein, R., and Flanagan, J. G. "Ephrin-B3, a ligand for the receptor EphB3, expressed at the midline of the developing neural tube." Oncogene 16: 471-480 (1998). Bessone, S., Vidal, F., Le Bouc, Y., Epelbaum, J., Bluet-Pajot, M. T. and Darmon, M. "EMK protein kinase-null 08 mice: dwarfism and hypofertility associated with alterations in the somatotrope and prolactin pathways." Dev. Biol. Betzl, G., Brem, G. and Weidle, U. H. "Epigenetic modification of transgenes under the control of the mouse mammary tumor virus LTR: tissue-dependent influence on transcription of the transgenes." Biol. Chem. 377: 711-719 (1996). Bishop, D. F., Calhoun, D. H., Bernstein, H. S., Hantzopoulos, P., Quinn, M., and Desnick, R. J. "Human alphagalactosidase A: Nucleotide sequence of a cDNA clone encoding the mature enzyme." Proc. Natl. Acad. Sci. USA 83: 4859-4863 (1986) Bocchinfuso, W. P. and Korach, K. S. "Mammary gland development and tumorigenesis in estrogen receptor knockout mice." J. Mamm. Gland Biol. Neoplasia 2: 323-334 (1997). Bohm, H., Brinkmann, V., Drab, M., Henske, A., and Kurzchalia, T. V. "Mammalian homologues of C. elegans PAR-1 are asymmetrically localized in epithelial cells and may influence their polarity." Curr. Biol. 7: 603-606 Brinkley, P. M., Class, K., Bolen, J. B., and Penhallow, R. C. "Structure and developmental regulation of the 13 murine ctk gene." Gene 163: 179-184 (1995). Buhler, T. A., Dale, T. C., Kieback, C., Humphreys, R. C. and Rosen, J. M. "Localization and quantification of 14 Wnt-2 gene expression in mouse mammary development." Dev. Biol. 155: 87-96 (1993). Cance, W. G., Craven, R. J., Weiner, T. M., and Liu, E. T. "Novel protein kinases expressed in human breast 15 cancer." Int. J. Cancer 54: 571-577 (1993). Cardiff, R. D., and Muller, W. J. "Transgenic mouse models of mammary tumorigenesis." Cancer Surv. 16: 97-113 16 Cardiff, R. D., Sinn, E., Muller, W., and Leder, P. "Transgenic oncogene mice. Tumor phenotype predicts 17 genotype." Am. J. Pathol. 139: 495-501 (1991). Carling, D., Aguan, K., Woods, A., Verhoeven, A. J., Beri, R. K., Brennan, C. H., Sidebottom, C., Davison, M. D., 18 and Scott, J. "Mammalian AMP-activated protein kinase is homologous to yeast and plant protein kinases involved in the regulation of carbon metabolism." J. Biol. Chem. 269: 11442-11448 (1994). Carlson, M., Osmond, B., and Botstein, D. "Mutants of yeast defective in sucrose utilization." Genetics 98: 25-40 19 (1981).Celenza, J. L., Eng, F. J., and Carlson, M. "Molecular analysis f the SNF4 gene of Saccharomyces cerevisiae: Evidence for physical association of the SNF4 protein with the SNF1 protein kinase." Mol. Cell. Biol. 9: 5045-5054 (1989).**Examiner Signature:** Date Considered:

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Sheet 2 of 8 IAN 0 8 2003 Form BSFQ-1449 U.S. Department of Commenter 1600/2900 DOCKET NO. 22253-70421 APPLICANT: Lewis A. Chodosh Date Filed: December 31, 2002 FILING DATE: 12/21/2001 OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, etc.) Cho, R. J., Campbell, M. J., Winzeler, E. A., Steinmetz, L., Conway, A., Wodicka, L., Wolfsberg, T. G., Gabrielian, A. E., Landsman, D., Lockhart, D. J., and Davis, R. W. "A genome-wide transcriptional analysis of the mitotic cell cycle." Mol. Cell 2: 65-73 (1998). 22 Chodosh, L. A., D'Cruz, C. M., Gardner, H. P., Ha, S. I., Marquis, S. T., Rajan, J. V., Stairs, D. B., Wang, J. Y., and Wang, M. "Mammary gland development, reproductive history, and breast cancer risk." Cancer Res. 59: 1765-1771S (1999). Chodosh, L. A., Gardner, H. P., Rajan, J. V., Stairs, D. B., Marquis, S. T., and Leder, P. A. "Protein kinase 23 expression during murine mammary development." Dev. Biol. 219: 259-276, (2000). Ciriacy, M. "Isolation and characterization of yeast mutants defective in intermediary carbon metabolism and in 24 carbon catabolite repression." Mol. Gen. Genet. 154: 213-220 (1977). Copeland, N. G., and Jenkins, N. A. "Development and applications of a molecular genetic linkage map of the 25 mouse genome." Trends Genet. 7: 113-118 (1991). Delabar, J. M., Theophile, D., Rahmani, Z., Chettouh, Z., Blouin, J. L., Prieur, M., Noel, B., and Sinet, P. M. 26 "Molecular mapping of twenty-four features of Down syndrome on chromosome 21." Eur. J. Hum. Genet. 1: 114-124 (1993). Di Fiore, P., Pierce, J. H., Fleming, T. P., Hazan, R., Ullrich, A., King, C. R., Schlessinger, J. and Aaronson, S. A. 27 "Overexpression of the human EGF receptor confers an EGF-dependent transformed phenotype to NIH 3T3 cells." Cell 51: 1063-1070 (1990). Drewes, G., Ebneth, A., Preuss, U., Mandelkow, E. M., and Man-delkow, E. "MARK, a novel family of protein 28 kinases that phosphorylate microtubule-associated proteins and trigger micro-tubule disruption." Cell 89: 297-308 (1997).Dymecki, S. M., Niederhuber, J. E., and Desiderio, S. V. "Specific expression of a tyrosine kinase gene, blk, in B 29 lymphoid cells." Science 247: 332-336 (1990). 30 Elson, A., and Leder, P. "Protein-tyrosine phosphatase epsilon. An isoform specifically expressed in mouse mammary tumors initiated by v-Ha-ras or neu." J. Biol. Chem. 270: 26116-26122 (1995). Fan, C. M., Kuwana, E., Bulfone, A., Fletcher, C. F., Copeland, N. G., Jenkins, N. A., Crews, S., Martinez, S., Puelles, L., Rubenstein, L. R., and Tessier-Lavigne, M. "Expression patterns of two murine homologs of Drosophila single-minded suggest possible roles in embryonic patterning and in the pathogenesis of Down syndrome." Mol. Cell. Neurosci. 7: 519 (1996). 32 Ferrari, S., Manfredini, R., Tagliafico, E., Grande, A., Barbieri, D., Balestri, R., Pizzanelli, M., Zucchini, P., Citro, G., Zupi, G., et al. "Antiapoptotic effect of c-fes protooncogene during granu-locytic differentiation." Leukemia 8: S91-94 (1994). 33 Fields, S., and Song, O. "A novel genetic system to detect protein-protein interactions." Nature 340: 245-246 Fox, G. M., Holst, P. L., Chute, H. T., Lindberg, R. A., Janssen, A. M., Basu, R., and Welcher, A. A. "cDNA cloning and tissue distribution of five human EPH-like receptor protein-tyrosine kinases." Oncogene 10: 897-905 (1995).35 Ganju, P., Walls, E., Brennan, J., and Reith, A. D. "Cloning and developmental expression of Nsk2. a novel receptor tyrosine kinase implicated in skeletal myogenesis." Oncogene 11: 281-290 (1995). 36 Gavin, B. J. and McMahon, A. P. "Differential regulation of the Wnt gene family during pregnancy and lactation suggests a role in postnatal development of the mammary gland." Mol. Cell. Biol. 12: 2418-2423 (1992). 37 Guo, S. and Kemphues, K. "par-1, a gene required for establishing polarity in C. elegans embryos, encodes a putative ser/thr kinase that is asymmetrically distributed." Cell 81: 611-620 (1995). 38 Guy, C. T., Muthuswamy, S. K., Cardiff, R. D., Soriano, P., and Muller, W. J. "Activation of the c-Src tyrosine kinase is required for the induction of fnammary tumors in transgenic mice." Genes Dev. 8: 23-32 (1994). Hanks, S. K., Quinn, A. M., and Hunter, T. "The protein kinase family: Conserved features and deduced 39 phylogeny of the catalytic domains." Science 241: 42-52 (1988). **Examiner Signature: Date Considered:** 

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Sheet 6 of 8 Form PTO-1449 JAN 0 8 2003 DOCKET NO. 22253-70421 U.S. Department of Commerce APPLICANT: Lewis A. Chodosal & Oct. TECH CENTER 1600/2900 Date Filed: December 31, 2002 FILING DATE: 12/21/2001 OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, etc.) Quintrell, N., Lebo, R., Varmus, H., Bishop, J. M., Pettenati, M. J., LeBeau, M. M., Diaz, M. O., and Rowley, J. D. "Identification of a human gene (HCK) that encodes a protein-tyrosine kinase and is expressed in hemopoietic BADEN cells." Mol. Cell. Biol. 7: 2267-2275 (1987). Rahmani, Z., Blouin, J. L., Creau-Goldberg, N., Watkins, P. C., Mattei, J. F., Poissonnier, M., Prieur, M., Chettouh, Z., Nicole, A., Aurias, A., et al., "Critical role of the D21S55 region on chromosome 21 in the pathogenesis of Down syndrome." Proc. Natl. Acad. Sci. USA 86: 5958-5962 (1989). Rajan, J. V., Marquis, S. T., Gardner, H. P., and Chodosh, L. A. "Developmental expression of Brca2 colocalizes 101 with Brca1 and is associated with differentiation in multiple tissues." Dev. Biol. 184: 385-401 (1997). Rawlings, D. J., and Witte, O. N. "Bruton's tyrosine kinase is a key regulator in B-cell development." Immunol. 102 Rev. 138: 105-119 (1994). Robinson, G. W., McKnight, R. A., Smith, G. H., and Hennighausen, L. "Mammary epithelial cells undergo 103 secretory differentiation in cycling virgins but require pregnancy for the establishment of terminal differentiation." Development 121: 2079-2090 (1995). Ruiz, J., Conlon, F., and Robertson, E. "Identification of novel protein kinases expressed in the myocardium of the 104 developing mouse heart." Mech. Dev. 48: 153-164 (1994). Russo, I. H., and Russo, J. "Developmental stage of the rat mammary gland as determinant of its susceptibility to 105 7,12-dimethylben(a)anthracene." J. Natl. Cancer Inst. 61: 1439-1449 (1978). Russo, J., and Russo, I. H. "Biological and molecular bases of mammary carcinogenesis." Lab. Invest. 57: 112-106 137 (1987). Sano, H., and Youssefian, S. "Light and nutritional regulation of transcripts encoding a wheat protein kinase 107 homolog is mediated by cytokinins." Proc. Natl. Acad. Sci. USA 91: 2582-2586. Santoro, M. M., Collesi, C., Grisendi, S., Gaudino, G., and Comoglio, P. M. "Constitutive activation of the RON 108 gene promotes invasive growth but not transformation." Mol. Cell. Biol. 16: 7072-7083 (1996). Sato, K., Mano, H., Ariyama, T., Inazawa, J., Yazaki, Y., and Hirai, H. "Molecular cloning and analysis of the 109 human Tec protein-tyrosine kinase." Leukemia 8: 1663-1672 (1994). Sato, T. N., Qin, Y., Kozak, C. A., and Audus, K. L. "Tie-1 and tie-2 define another class of putative receptor 110 tyrosine kinase genes expressed in early embryonic vascular system." Proc. Natl. Acad. Sci. USA 90: 9355-9358 (1993). [Published erratum appears in Proc. Natl. Acad. Sci. USA, 1993, 15, 12056] Sato, T. N., Tozawa, Y., Deutsch, U., Wolburg-Buchholz, K., Fujiwara, Y., Gendron-Maguire, M., Gridley, T., Wolburg, H., Risau, W., and Qin, Y. "Distinct roles of the receptor tyrosine kinases Tie-1 and Tie-2 in blood vessel formation." Nature 376: 70-74 (1995). Schnurch, H., and Risau, W. "Expression of tie-2, a member of a novel family of receptor tyrosine kinases, in the 112 endothelial cell lineage." Development 119: 957-968 (1993). Shulman, J. M., Benton, R. and St Johnston, D. "The Drosophila homolog of C. elegans PAR-1 organizes the 113 oocyte cytoskeleton and directs oskar mRNA localization to the posterior pole." Cell 101: 377-388 (2000). Siliciano, J. D., Morrow, T. A., and Desiderio, S. V. "itk, a T-cell-specific tyrosine kinase gene inducible by 114 interleukin 2." Proc. Natl. Acad. Sci. USA 89: 11194-11198 (1992). Sinn, E., Muller, W., Pattengale, P., Tepler, I., Wallace, R., and Leder, P. "Coexpression of MMTV/v-Ha-ras and 115 MMTV/c-myc genes in transgenic mice: Synergistic action of oncogenes in vivo." Cell 49: 465-475 (1987). Slamon, D. J., Clark, G. M., and Wong, S. G. "Human breast cancer: Correlation of relapse and survival with 116 amplification of the HER-2/neu oncogene." Science 235: 177-182 (1987). Slamon, D. J., Godolphin, W., Jones, L. A., Holt, J. A., Wong, S. G., Keith, D. E., Levin, W. J., Stuart, S. G., Udove, J., Ullrich, A., et al. "Studies of the HER-2/neu proto-oncogene in human breast and ovarian cancer." Science 244: 707-712 (1989). Stairs, D. B., Gardner, H. P., Ha, S. I., Copeland, N. G., Gilbert, D. J., Jenkins, N. A., and Chodosh, L. A. 118 "Cloning and characterization of Krct, a member of a novel subfamily of serine/threonine kinases." Hum. Mol. Genet. 7: 2157-2166 (1998). Stambolic, V., Suzuki, A., de la Pompa, J. L., Brothers, G. M., Mirtsos, C., Sasaki, T., Ruland, J., Penninger, J. M., 119 Siderovski, D. P., and Mak, T. W. "Negative regulation of PKB/Akt-dependent cell survival by the tumor suppressor PTEN." Cell 95: 29-39 (1998). **Examiner Signature:** Date Considered:

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